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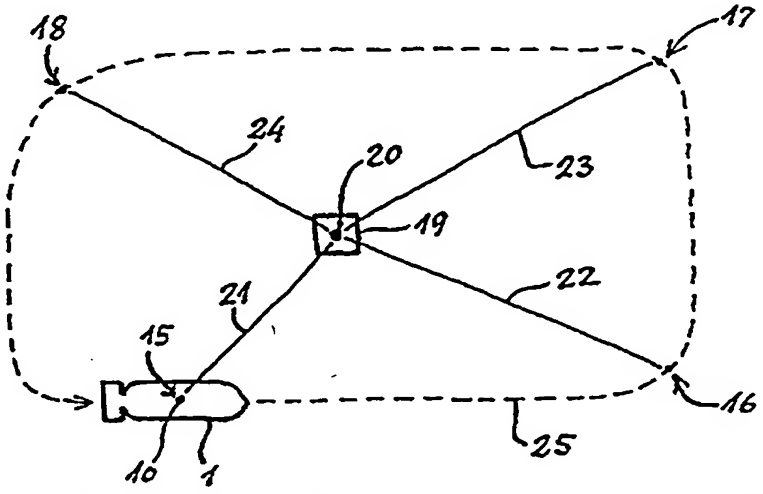
(54) Title: METHODS AND SYSTEMS FOR NAVIGATING UNDER WATER



(57) Abstract: In a method for determining absolute position under water of a submersible vessel (1) having a dead reckoning navigation system and receiving acoustic signals from a reference station (19), signals are received from one reference station in several positions (15-18) of the vessel. Estimated absolute positions of the vessel are calculated using range data and relative position data. Range rate data derived from the signals are preferably utilised. In a method for scanning an underwater survey area, the absolute position of a vessel (1) is intermittently being determined according to said method. The reference station may be placed at a fixed absolute position (19), or on the surface of the water, preferably in a buoy or a vessel. A system for determining the absolute position under water of a vessel comprises: acoustic communication means in a reference station and on board the vessel; a dead reckoning navigation system on board the vessel; and computing means.

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